

WHAT IS CLAIMED IS:

1. A paper feed apparatus provided with a paper storage capable of storing a plurality of sheets of paper, a paper feed mechanism having a paper feed roller for separating the paper stored in the paper storage sheet by sheet and capable of feeding the separated paper to a given convey path, and an inclined surface provided in the given convey path such that the inclined surface makes an obtuse angle relative to the paper stored in the paper storage, the paper feed apparatus comprising:

a plurality of projections capable of engaging with ends of the plurality of sheets of paper and of projecting from the inclined surface; and

a plurality of resilient arm portions for holding the respective projections at respective positions so as to project from the surface of the inclined surface.

2. The paper feed apparatus according to claim 1, wherein the arm portions are formed of metal.

3. The paper feed apparatus according to claim 1, wherein the projections are formed of a material having a high abrasion resistance.

4. The paper feed apparatus according to claim 1,

wherein the plurality of projections are arranged along the conveying direction of the paper.

5. The paper feed apparatus according to claim 1, wherein the projections are formed integrally with the arm portions.

6. The paper feed apparatus according to claim 1, wherein the arm portion has a bent configuration.

7. The paper feed apparatus according to claim 1, wherein the inclined surface is provided with an elongated hole formed along the conveying direction of the paper, and wherein the plurality of projections project from the inclined surface through the elongated hole.

8. The paper feed apparatus according to claim 1, wherein the arm portion is held in a cantilever manner.

9. The paper feed apparatus according to claim 1, wherein the arm portion is held at the both ends thereof.

10. The paper feed apparatus according to claim 1, wherein the each arm portion holds a plurality of projections.

11. The paper feed apparatus according to claim 1,

wherein the each arm portion holds the each projection independently.

12. The paper feed apparatus according to claim 1, wherein the paper storage holds a plurality of sheets of paper in an inclined state relative to the horizontal plane.

13. A paper separation mechanism for use in a paper feed apparatus provided with a paper feed roller for separating a plurality of stacked sheets of paper and feeding the paper sheet by sheet, the paper separation mechanism comprising:

a paper separation unit including:

a plurality of projections capable of engaging with ends of the plurality of stacked sheets of paper in the paper feed direction;

a plurality of resilient arm portions for holding the respective projections at respective positions so as to engage with the ends of the paper; and

a base portion for holding the resilient arm portions.

14. The paper separation mechanism according to claim 13, further comprising a holder unit having an elongated hole formed along the paper feed direction of the paper, wherein the projections of the paper separation unit project upward a predetermined length from through the elongated hole of the holder unit.

15. The paper separation mechanism according to claim 14, wherein at least the surface of the holder unit which abuts the ends of the sheets of paper is made of a material having a friction coefficient with the paper lower than the friction coefficient between the sheets of paper.

16. The paper separation mechanism according to claim 14, further comprising a separation unit retainer for retaining the base portion from thereunder and sandwiching the base portion between the separation unit retainer and the holder unit.

17. The paper separation mechanism according to claim 13, wherein the projection is held at the center of the arm portion, and wherein the arm portion is held at the both ends thereof by the base portion.

18. The paper separation mechanism according to claim 13, wherein the arm portion is held in a cantilever manner by the base portion.

19. The paper separation mechanism according to claim 13, wherein the paper separation unit is constituted by stacking a plurality of paper separation plates such that the arm portions and the projections alternate with each other, respectively.

20. The paper separation mechanism according to claim 13, wherein the single arm portion holds a plurality of projections.

21. The paper separation mechanism according to claim 13, wherein the each arm portion independently holds the each projection.

22. The paper separation mechanism according to claim 13, wherein the paper separation unit is made of metal.

23. A paper feed apparatus comprising:
a paper storage capable of storing a plurality of sheets of paper;
a paper feed mechanism having a paper feed roller for separating the paper stored in the paper storage sheet by sheet and capable of feeding the separated paper to a given convey path; and
an inclined surface provided in the given convey path such that the inclined surface makes an obtuse angle relative to the paper stored in the paper storage,
wherein the paper separation mechanism according to claim 13 is provided on the inclined surface.

24. The paper feed apparatus according to claim 23, wherein the paper storage holds the plurality of sheets of paper in

an inclined state relative to the horizontal plane.

25. The paper feed apparatus according to claim 23, wherein two or more paper separation mechanisms are provided on the inclined surface.